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EXAMINER	
CRAWFORD, ERIK B	

ART UNIT	PAPER NUMBER
1641	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/588,172	LAITENBERGER ET AL.	
	Examiner	Art Unit	
	Erik B. Crawford	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-33* is/are pending in the application.

5a) Of the above claim(s) *27* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-26 and 28-33* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *09 March 2010* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/GB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendments in the reply filed on September 17, 2010 have been acknowledged and entered.

Status of Claims

Claims 1-33 are pending, claim 27 has been withdrawn from consideration, claims 21-33 are newly added, and claims 1-26 and 28-33 are currently under consideration for patentability under 37 CFR 1.104.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. The instant application is a national phase under 35 U.S.C. 371 of PCT International Application No. PCT/GB2005/000367, filed on February 3, 2005.

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copies of United Kingdom Patent Application No.'s 0402326.3, filed on February 3, 2004, 0402324.8, filed on February 3, 2004, 0402325.5, filed on March 3, 2004, 0402327.1, filed on February 3, 2004, 0402323.0, filed on February 3, 2004, 0404924.3, filed on March 4, 2004, 0405313.8, filed on March 9,

2004, 0405312.0, filed on March 9, 2004, and 0408535.3, filed on April 16, 2004 have been filed in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12, 14, 16, 17, 20-25, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht et al. (U.S. Patent No. 5,900,128, May 4, 1999) (hereinafter "Gumbrecht") in view of Blanco-López et al. (*Trends in Analytical Chemistry*, January 2004, Vol. 23, pp36-48) (hereinafter "Blanco-López").

The prior art reference, Blanco-López, has been cited in the IDS dated August 1, 2006.

Gumbrecht teaches an electrochemical sensor provided on a substrate (see entire document). The sensor includes a confinement structure created from materials applied to the substrate (reference numeral 1 in Fig. 1), wherein the confinement structure comprises at least a first limiting structure defining a first interior space and a transducer (reference numeral 2 in Fig. 1). The electrochemical sensor of Gumbrecht is not prone to cracking or to fluid leakage which can result in a short circuiting or corrosion of sensor (column 1, lines 40-43). The angled substrate surfaces surrounding the transducer are considered the first confinement structure and Gumbrecht teaches that the tranducer and confinement structure may comprise an oxide layer (e.g., silicon oxide) (col. 3, lines 23-25).

With respect to claim 2, Gumbrecht teaches a sensor, wherein the confinement structure comprises a second limiting structure defining a second interior space, the second interior space containing the first interior space (Fig. 1).

With respect to claim 3, Gumbrecht teaches a sensor, wherein the confinement structure further comprises one or more further limiting structures defining one or more further interior spaces, the one or more further interior spaces each containing an interior space (Fig. 1).

With respect to claim 10, Gumbrecht teaches a sensor, wherein the limiting structures of the confinement structure are annular (Fig. 2).

With respect to claim 11, Gumbrecht teaches a sensor, wherein the sensor further comprises at least one additional confinement structure and a transducer proximal to the first interior space of each of the at least one additional confinement structures (column 1, lines 50-67).

With respect to claims 16 and 17, Gumbrecht teaches the first and second interior spaces contain a conducting material (electrolyte layer, Abstract and Fig. 1).

With respect to claim 20, Gumbrecht teaches that the transducer is disposed on the substrate (Fig. 1).

With respect to claim 21, Gumbrecht teaches that the transducer is an electrochemical transducer (Abstract).

With respect to claim 22, Gumbrecht teaches that the substrate is a silicon wafer and substantially planar (column 3, lines 8-11 and Fig. 1).

With respect to claim 24, Gumbrecht teaches that the confinement structure is fabricated from a polyimide (Abstract).

However, Gumbrecht fails to teach that the electrochemical sensor further comprises a first synthetic polymer capable of selectively binding a first analyte within the confinement structure.

Blanco-López teaches molecular imprinted polymers (MIPs), which are an important class of synthetic materials mimicking molecular recognition by natural receptors (see entire document, particularly Abstract). MIPs have a great range of applications because of the theoretical lack of restriction on size, shape, or chemical character of the imprinted molecule (p36, 1. *Introduction*, 1st paragraph). The possibility of tailor-made, highly selective artificial receptors at low cost with good mechanical, thermal, and chemical properties make these synthetic materials appear ideal chemoreceptors (p36, 1. *Introduction*, 1st paragraph). For sensing application, MIPs can be immobilized on electrode surface for electrochemical detection (p. 38-41, Table 4; p. 45, *4.1 Integration through powder processing*), which reads on the first synthetic polymer being trapped. For example, Blanco-López teaches drop-coating MIPs onto silicon oxide substrates (p. 41, Table 4).

With respect to claim 11, Blanco-López teaches that different types of recognition elements can be associated with different sensors (p47, *6.4 Application to real samples*).

With respect to claims 12 and 14, Blanco-López teaches that the first synthetic polymer is a molecularly imprinted polymer as set forth above.

With respect to claim 25, Blanco-López teaches a method of detecting a target species in a sample comprising contacting a sensor with a sample containing or suspected to contain the target species (p47, *6.4 Application to real samples*).

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate MIPs on the electrochemical sensor surface as taught by Blanco-López in the sensor of Gumbrecht in order to detect analytes using tailor-made, highly selective artificial receptors. The advantage of using synthetic receptors that can be tailor-made to be highly selective artificial receptors at low cost with good mechanical, thermal, and chemical properties with no size, shape, or chemical character restriction provides the motivation to combine teachings of Gumbrecht and Blanco-López. One of ordinary skill in the art would have had a reasonable expectation of success in combining teachings of Gumbrecht and Blanco-López since Blanco-López teaches that MIPs can be incorporated into variety of electrochemical sensors. Furthermore, Blanco-López demonstrates that the MIPs may be drop-coated onto the silicon oxide substrate material that comprises the sensor layer of the device of Gumbrecht, which would consequently result in the MIPs lying against the angled substrate surface (i.e. inner wall of the confinement structure).

With respect to the limitation of "the first synthetic polymer being immobilized by the confinement structure to prevent peeling of the first synthetic polymer from the substrate", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is

capable of performing the intended use, then it meets the claim. In the instant case, Blanco-López teaches molecular imprinted polymers (MIPs), which are an important class of synthetic materials mimicking molecular recognition by natural receptors as set forth in the previous Office action dated June 18, 2010 and above. For sensing application, MIPs can be immobilized on electrode surface for electrochemical detection (p. 38-41, Table 4; p. 45, *4.1 Integration through powder processing*). Therefore, MIPs immobilized on the sensing surface of Gumbrecht would capable of preventing peeling of the first synthetic polymer (MIPs) from the substrate as they would consequently lie against the inner wall of the confinement structure.

With respect to claims 4 and 5, Blanco-López teaches MIPs capable of selectively binding a first analyte is disposed on the sensor surface. Since the sensor is present in the proximity of the first and second interior spaces, which includes electrolyte layer, the MIPs must necessarily be disposed within the first and second interior spaces.

With respect to claims 6-9, Gumbrecht in view of Blanco-López teaches the claimed sensor device except for the internal diameter of the first limiting structure being about 10-350 μm, the height of the first limiting structure being about 1-10 μm, the internal diameter of the second limiting structure being about 50-600 μm, and the height of the second limiting structure is about 1- 100 μm. It would have been an obvious matter of design choice to adjust the dimensions (diameter and height) of the first and second limiting structures, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being

within the level of ordinary skill in the art. *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) (Claims directed to a lumber package "of appreciable size and weight requiring handling by a lift truck" where held unpatentable over prior art lumber packages which could be lifted by hand because limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art.); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) ("mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148.). *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

With respect to claims 31-33, Gumbrecht in view of Blanco-López teach coating of a substrate surface with MIPs, as decribed above. The angled substrate surfaces surrounding the transducer are considered the first confinement structure and the tranducer 2, is considered the first interior space. Thus, provided the teachings of Gumbrecht in view of Blanco-López the first synthetic polymer necessarily lies against the inner wall of the confinement structure, consequently covering and filling the first interior space.

Claims 13, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht (U.S. Patent No. 5,900,128, May 4, 1999) in view of Blanco-López (*Trends in Analytical Chemistry*, January 2004, Vol. 23, pp36-48) as applied to claim 1 above, and further in view of Petcu *et al.* (*Analytica Chimica Acta*, Vol. 504, Issue 1, pages 73-79; hereinafter as "Petcu").

Gumbrecht in view of Blanco-López teaches a sensor and method of detecting target species in a sample using the sensor as set forth above.

With respect to claims 28 and 29, Gumbrecht teaches the first and second interior spaces contain a conducting material (electrolyte layer, Abstract and Fig. 1) and the transducer is an electrochemical transducer (Abstract).

Although Gumbrecht in view of Blanco-López teaches that a variety of analytes can be determined by employing MIPs that can be tailor-made to be highly selective artificial receptors at low cost with good mechanical, thermal, and chemical properties, Gumbrecht in view of Blanco-López fails to specifically teach MIPs capable of selectively binding propofol.

Petcu teaches a biosensor device comprising a thin film imprinted polymer (i.e. MIP) for propofol that provides for rapid, non-equilibrium binding of propofol in samples (Abstract).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to design the device of Gumbrecht in view of Blanco-López to comprise MIPs for specifically detecting propofol, as taught by Petcu, since Petcu teaches that propofol is an important anesthetic that is rapidly and variably

metabolized in patients, thus requiring continuous monitoring. The advantage of rapidly monitoring propofol allows for better maintenance of desired anesthesia levels in patents, which is especially of concern when administering short acting anesthetics such as propofol. Further, one of ordinary skill in the art would have had a reasonable expectation of success in combining teachings of Gumbrecht in view of Blanco-López and Petcu since Blanco-López teaches that MIPs can be tailor-made to be highly selective artificial receptors at low cost with good mechanical, thermal, and chemical properties as set forth above and since the thin film imprinted polymer of Petcu is considered a MIP.

Claims 15 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht (U.S. Patent No. 5,900,128, May 4, 1999) in view of Blanco-López (*Trends in Analytical Chemistry*, January 2004, Vol. 23, pp36-48) as applied to claim 1 above, and further in view of Ulbricht et al. (U.S. Patent No. 6,670,427 B1, Dec. 30, 2003) (hereinafter "Ulbricht").

Gumbrecht in view of Blanco-López teaches a sensor and method of detecting target species in a sample using the sensor as set forth above. Although Gumbrecht in view of Blanco-López teaches a sensor comprising a first synthetic polymer of a molecularly imprinted polymer, Gumbrecht in view of Blanco-López fails to specifically teach that the sensor comprises at least one additional confinement structure having a reference material therein and the reference material is a corresponding non-imprinted polymer.

Ulbricht teaches a method of using non-imprinted polymer as a reference sample (see entire document, particularly column 11, Example 5).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ a non-imprinted polymer as taught by Ulbricht in the sensor and method of Gumbrecht in view of Blanco-López in order to provide a reference sample. The advantage of having a reference sample (i.e. negative control) provides the motivation to combine teachings of Gumbrecht in view of Blanco-López and Ulbricht with a reasonable expectation of success since such reference data is necessary to determine specificity of target binding to the first synthetic polymers capable of specifically binding to the target species.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht (U.S. Patent No. 5,900,128, May 4, 1999) in view of Blanco-López (*Trends in Analytical Chemistry*, January 2004, Vol. 23, pp36-48) as applied to claim 1 above, and further in view of Dickert et al. (U.S. Patent No. 6,223,589 B1, May 1, 2001) (hereinafter "Dickert").

Gumbrecht in view of Blanco-López teaches a sensor and method of detecting target species in a sample using the sensor as set forth above. Although Gumbrecht in view of Blanco-López teaches a sensor comprising a first synthetic polymer of a molecularly imprinted polymer, Gumbrecht in view of Blanco-López is silent on teaching that at least one confinement structure further comprises one or more additional substances which provide a specific environment such as a non-aqueous environment.

Dickert teaches that molecular imprinting coatings can be used as both gas and liquid sensors (see entire document, particularly column 2, lines 31-37).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the sensor of Gumbrecht in view of Blanco-López for both gas and liquid sensors as taught by Dickert. The advantage of detecting analytes in both gas and liquid phases provide the motivation to teachings of Gumbrecht in view of Blanco-López and Dickert with a reasonable expectation of success.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht (U.S. Patent No. 5,900,128, May 4, 1999) in view of Blanco-López (*Trends in Analytical Chemistry*, January 2004, Vol. 23, pp36-48) as applied to claims 1 and 25 above, and further in view of Dieffenbach (U.S. Patent No. 5,089,421, Feb. 18, 1992).

Gumbrecht in view of Blanco-López teaches a sensor and method of detecting target species in a sample using the sensor as set forth above. However, Gumbrecht in view of Blanco-López is silent on teaching that the sample is returned to the patient.

Dieffenbach teaches an apparatus of for analyzing blood, which allows collection, analysis, and return of a blood sample of a patient without the sample being exposed to ambient air (see entire document, particularly column 2, lines 4-21). Such apparatus is useful for the continuous monitoring of arterial blood in neonates or adults (column 1, lines 15-17).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ the blood collection apparatus of Dieffenbach in the sensor of Gumbrecht in view of Blanco-López in order to allow continuous blood analysis. The advantage of allowing collection, analysis, and return of a blood sample of a patient without the sample being exposed to ambient air provides the motivation to combine teachings of Gumbrecht in view of Blanco-López and Dieffenbach with a reasonable expectation of success.

Response to Arguments

Rejection of claims 1-12, 14, 16, 17, and 20-25 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López

Applicant's arguments filed on September 17, 2010 have been fully considered but they are not persuasive essentially for the reasons of record and arguments addressed herein.

In response to applicant's argument that the use of a confinement structure as an immobilization anchor for a polymer in its inner space such that delamination is prevented is not taught by the prior art, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to applicant's argument that the prior art does not teach "the first synthetic polymer being immobilized by the confinement structure to prevent peeling of the first synthetic polymer from the substrate", a recitation of the intended use of the

claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In the instant case, Blanco-López teaches molecular imprinted polymers (MIPs), which are an important class of synthetic materials mimicking molecular recognition by natural receptors as set forth in the previous Office action dated June 18, 2010 and above. For sensing application, MIPs can be immobilized on electrode surface for electrochemical detection (p. 38-41, Table 1; p. 45, *4.1 Integration through powder processing*). For example, MIPs can be drop-coated on SiO2 transduction/substrate surfaces (p. 41). Furthermore, Gumbrecht teaches that the sensor layer 4, upon which the examiner is relying upon as the surface for immobilizing the MIPs, may comprise an oxide layer, such as silicon oxide (col. 3, lines 23-25). Therefore, MIPs immobilized on the sensing surface of Gumbrecht would capable of preventing peeling of the first synthetic polymer (MIPs) from the substrate as they would consequently lie against an inner wall of the confinement structure upon deposition onto the substrate.

Applicant's argument that one skilled in the art would not be aware of how the synthetic polymer could be formed inside the confinement structures is not found persuasive. Further, Applicant's argument regarding MIP deposition techniques disclosed by Blanco-López on Table 5 has been fully considered but is not found persuasive. Although spin-coating, silanization and sandwich techniques may not be suitable for immobilization of MIPs in the confinement structure, Blanco-López further includes other coating method (e.g., drop-coating, photografting, etc.), which can be

used as immobilization means for coating the substrate of Gumbrecht with the MIPs of Blanco-López. The substrate of Grumbercht 4, which is being coated with the MIPs of Blanco-López, may comprise an oxide layer such as silicon oxide, and Blanco-López teaches that MIPs may be drop-coated on SiO_2 transducers/substrates.

In contrast to applicant's assertions; disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See *In re Susi*, USPQ 423 (CCPA 1971). A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. See *In re Gurley*, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). See MPEP § 2123.

In response to applicant's teaching away arguments, a prior art reference may be considered to teach away when "a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). General skepticism of those in the art -- not amounting to teaching away -- is also "relevant and persuasive evidence" of nonobviousness. *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 726, 16 USPQ2d 1923, 1929 (Fed. Cir. 1990). In effect, "teaching away" is a more pointed and probative form of skepticism expressed in the prior art. In any case, the presence of either of these indicia gives insight into the question of obviousness. Blanco-López teaches molecular imprinted polymers (MIPs), which are an important class of synthetic materials mimicking molecular recognition by natural receptors as set forth in the

previous Office action dated June 18, 2010 and above. For sensing application, MIPs can be immobilized on electrode surface for electrochemical detection (p45, *4.1 Integration through powder processing*). Therefore, MIPs immobilized on the sensing surface of Gumbrecht would be capable of preventing peeling of the first synthetic polymer (MIPs) from the substrate as they would consequently lie against an inner wall of the confinement structure upon deposition onto the substrate. The prior art does not teach that such immobilization techniques would be susceptible to peeling of the MIP's from substrate surfaces.

In view of the foregoing, the rejection of claims 1-12, 14, 16, 17, and 20-25 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López has been maintained.

Rejection of claims 13, 28, and 29 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Leyland-Jones

Applicant's arguments with respect to claims 13, 28, and 29 have been considered but are moot in view of the new ground(s) of rejection.

Rejection of claim 15 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Ulbricht

Applicant's arguments filed on September 17, 2010 have been fully considered but they are not persuasive essentially for the reasons of record and response to arguments set forth above.

Further, applicant's argument that Ulbricht does not teach the use of sensor comprised of reference material within additional confinement structure has been fully considered but is not found persuasive essentially for the reasons of record. As set forth in the previous Office action dated December 9, 2009 and above, Gumbrecht teaches a sensor, wherein the sensor further comprises at least one additional confinement structure and a transducer proximal to the first interior space of each of the at least one additional confinement structures (column 1, lines 50-67) for multi-sensing application. However, Gumbrecht in view of Blanco-López teaches a sensor comprising a first synthetic polymer of a molecularly imprinted polymer, Gumbrecht in view of Blanco-López fails to specifically teach that the sensor comprises at least one additional confinement structure having a reference material therein and the reference material is a corresponding non-imprinted polymer. Ulbricht teaches a method of using non-imprinted polymer as a reference sample (see entire document, particularly column 11, Example 5). Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to employ a non-imprinted polymer as taught by Ulbricht in the sensor and method of Gumbrecht in view of Blanco-López in order to provide a reference sample. The advantage of having a reference sample (i.e. negative control) provides the motivation to combine teachings of Gumbrecht in view of Blanco-López and Ulbricht with a reasonable expectation of success since such reference data is necessary to determine specificity of target binding to the first synthetic polymers capable of specifically binding to the target species. Therefore, the combination of

Gumbrecht, Blanco-López, and Ulbricht meets the sensor comprising reference material within additional confinement structure.

In view of the foregoing, the rejection of claim 15 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Ulbricht has been maintained.

Rejection of claims 18 and 19 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Dickert

Applicant's arguments filed on September 17, 2010 have been fully considered but they are not persuasive essentially for the reasons of record and response to arguments set forth above.

In view of the foregoing, the rejection of claims 18 and 19 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Dickert has been maintained.

Rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Dieffenbach

Applicant's arguments filed on September 17, 2010 have been fully considered but they are not persuasive essentially for the reasons of record and response to arguments set forth above.

In view of the foregoing, the rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Gumbrecht in view of Blanco-López, and further in view of Dieffenbach has been maintained.

Since the prior art fulfills all the limitations currently recited in the claims, the invention as currently recited would read upon the prior art.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to UNSU JUNG whose telephone number is (571)272-8506. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Erik B. Crawford/
Examiner, Art Unit 1641

/Melanie J Yu/
Primary Examiner, Art Unit 1641